



NCAN introduced fodder chaff cutter to optimise fodder utilisation in Bhutan
Pg 3



Implementation Support Review Mission for MAGIP concludes
Pg 7

365/14/15

Commercial Winter Vegetable Production

A case study from Samtenling geog

Domang, DAO and Thinley Gyelmo, Agriculture Extension Officer, Sarpang



Samtenling is one of the 12 geogs in Sarpang with 289 households (hhs) which has five chiwogs with an altitudes ranging from 314 masl to 705 masl. Out of five chiwogs, 21 hhs from Samtenthang and eight hhs from Samteling chiwogs have high potential for cultivation.

Therefore, in 2012, the mass commercial winter vegetable production was started with the initiative from the Department of Agriculture.

To start with, farmers were supplied with 1031 packets assorted vegetables such as cabbage, cauliflower, broccoli,

tomato, beans, onion, carrot, chili and pea for commercial production. The farmers cultivated the vegetables in an area of ranging 0.15 acres. to 1.20 acres individually covering more than 13.59 acres.

In total, Samtenling geog has sold cabbage 5601 kgs, cauliflower 2575 kgs, broccoli 3002 kgs, beans 1718 kgs, carrot 105 kgs, pea 153 kgs, tomato 801 kgs, onion leaves 510 bundles and chili 128 kgs, mostly in local and Gelephu vegetable markets.

The revenue generated in total was around Nu. 0.417 million. One

of the farmers from Samtenling village who produces vegetable in large scale with a grocery shop has the direct buyers from Punakha and Thimphu on every Friday and Saturday and supplied cabbage- 479 kgs, cauliflower- 341 kgs, broccoli-313 kgs, tomato- 200 kgs, beans 211 kgs, pea 8 kgs and chili 5 kgs in winter.

Most of the time, the Bhutanese farmers claim facing price competition with Indian vegetables as they sell at high price due to high cost of production.

However, Mr. Data Ram, a farmer

Contd. at page 2



Contd. from page 1...Commercial Winter Vegetable Production

from Samteling reveals that with an expenditure of Nu.10, 050 for mixed vegetables production, he managed to earn Nu.51, 785 with a net profit of Nu.41, 735.

This shows that vegetable farming has high income and employment opportunities for the youth especially for school drops outs if they are willing to take up vegetable farming as a source of income.

Likewise the farmers of Samtenling geog are taking up more vegetable cultivation comparing to the earlier first and second years and it is seen that even the farmers from other chiwogs are interested to grow vegetable commercially provided the water shortage problem is addressed.

The farm records are kept by most of the farmers those who can read and write while some are being maintained with

the help of their school going children. The records for the total production and the rates were reported by all the vegetables growers at the end of season.

The problem faced by the vegetable growers are the shortage of water in winter, caterpillar and aphids problem in cole crops, red ants in broccoli especially during seedlings stage, tomato wilt, dying of onion in nursery, stunted pea with no production, poor germination of onion and broccoli and damage especially by rabbit.

Farmers expressed that they prefer hybrid broccoli instead of cultivating OP broccoli on which hybrid has high yield.

The support required are fencing net for protection from rabbit, high-density polyethylene (HDPE) pipes 20 mm, reservoir tanks and water sprinklers. With support from the

Department and Dzongkhag, few farmers are already supplied with flexible pipes but prefer to have HDPE pipe which is durable. Farmers further needs the support for improved and productive vegetable seeds and necessary inputs from relevant support agencies.

Coming winter season, the Dzongkhag and geog agriculture sector will further focus to expand large area of commercial vegetable farming.

Those farmers interested to take up the vegetable farming in more than an acre will be supported with free and improved winter vegetable seeds.

More vegetable traders will also be encouraged and connected with the commercial vegetable growers to improve the vegetable production and marketing system.



NCAN introduced fodder chaff cutter to optimise fodder utilisation in Bhutan

NCAN



Electrical chaff cutter

Dairy farming is one of the most important livestock rearing activities in Bhutan. Since an inception of agriculture development in the country, many exotic breeds were introduced by the Department of Livestock through implementation of various breed improvement programs.

In view of this, number of improved cattle breeds have been steadily rising and there are 76051 nos. of improved cattle in the country as of now constituting about 25.14 % of the total cattle population.

However, it is a daunting challenge to meet the fodder requirements throughout the year due to limited land holdings. Most of the fertile lands are used for growing agriculture food crops leaving only few unproductive lands for fodder production.

Therefore, to achieve fodder requirement through optimum fodder resources utilisation, the National Centre for Animal Nutrition (NCAN) has introduced

fodder chaff cutter for dairy farmers since 2008. The cutter is used for cutting or chopping dry straw and green fodder before feeding and silage preparation.

Earlier manually operated chaff cutters were supplied to interested dairy farmers having developed improved pasture and later onward, the NCAN has supplied electrical chaff cutter for farmers convenience. So far, around 200 electrical chaff cutters were supplied to dairy farmers in the

country at an subsidised rate. The farmers have to pay only 40% of the total cost and 60% is borne by the Government.

Use of electrical chaff cutter has many advantages in terms of time saving and reducing fodder wastage. It is also easy for animal to swallow chopped fodder and digestible too.

The feedback received from the end users is quite positive and dairy farmers across the country have placed lot of demand for electrical chaff cutter. However, the NCAN is not in the position to fulfill their demands due to budgetary constraints.

Nevertheless, if the centre gets enough government budgets or any funding sources in the coming year, more electrical chaff cutters will be supplied to meet the farmers demand. This program will greatly support towards an optimum utilisation of limited fodder resources to enhance dairy production in the country.



Manual chaff cutter



NCAN initiates fodder plantation

NCAN



Lack of quality and adequate feed and fodder resources is one of the main causes for slow development of the livestock industry in our country.

Increasing feed and fodder resources base in the field, improved optimisation of available feed and fodder resources through appropriate strategies and technology innovations at the grassroots level are the most critical interventions if overall

objective of the livestock production is to be achieved. Dairy by small farmers is widespread in our country and the population of improved dairy cows is growing every year as the income from the dairy sector is promising.

As a part of the annual program, the Fodder Extension Unit under the National Centre for Animal Nutrition (NCAN) based on the proposals from the Dzongkhags have carried out numerous

fodder plantations under the Contract fodder grower program. Starting April 2015, the NCAN has developed more than 25 acres of fodder plantations in Dewathang, Nganglam and Panbang.

The program created opportunities for dairy farmers to increase milk yield and reduce reliance on supplementary feeding since pasture is the cheapest source of feed for all grazing-based livestock enterprises. It also boosted the availability of the feed and fodder for livestock production throughout the year in all the agro-ecological zones of the country.

Besides, it created awareness on importance of fodder production, an institutional mechanism for enhancing the availability of quality and quantity fodder resource for livestock farmers and encouraged farmers to make best use of uncultivable land for fodder plantations.

The NCAN supported free seeds/seedlings, fencing materials, labour cost and conducted farmers' awareness trainings as a package.

A similar plantation program is being planned in Phuntsholing in June 2015 based on the proposal from Chukha. About 18 acres of land unsuitable for agriculture crops will be brought under improved pasture and improved Napier plantation.

More than 22 acres of improved pasture was established in Samtse and another 18 acres of land in Zhemgang was brought under Napier cultivation in May 2014 under the contract program. The



Do you know about Armyworm?



This pest is known as a migrant species, especially in the years of mass outbreaks; its larvae move in rows that are 15-20 m wide, searching food at night and in the afternoon; the pest in swarms is even able to cross small rivers.

The adult moths can migrate over long distance upto 1500 Km; the direction of migration is determined by monsoon winds and air streams.

Army worm is a moisture loving and thermophilic species. Optimum temperature for growth and emergence is 23-30°C for larvae, 25°C for pupae, and 20-25°C for moths. Optimum relative air humidity is 80-95%.

Adult moth flight of the overwintered generation occurs from end of May until the third week of June; moth flight of 1st generation occurs in 1st-2nd weeks of August; moth flight of 2nd generation in September-October.

Army worm species belonging to insect family, Noctuidae, are polyphages, preferring cereals; they populate plains (wheatgrass

fallows, shorthear meadows) by rivers, lakes, or bogs, preferring false wheat, shorthear, chicken millet, and reed.

Larvae of all instars feed mainly on leaves. The older larvae of 4-6 instars cause the main harm, roughly gnawing out and eating around leaf plate, and damaging inflorescences, ears, growth point, and grain in ears. Starting with weeds, the larvae then pass to cultural plants. Larvae of 1st generation cause the greatest harm.

Helpful tips to manage it?

1. Flooding seedbed is the best defence against armyworms when the population is in the larval stage. Flooding drowns the swarming larvae.

2. Field Sanitation: Cut grass weeds from bordering fields (particularly gramineae) regularly to reduce breeding sites and shelter for armyworm.

3. To prevent the caterpillars from moving to another field, apply a 40 foot border spray around

the non-infested field.

4. Plough a deep ditch and filled it with water. This method is helpful when caterpillars are found to be moving towards your field from the adjacent fields.

5. Another method is to dig a deep ditch with vertical sides to trap the caterpillars and prevent them from crawling out. Caterpillars are lured to congregate in the holes. Collect and properly dispose the trapped caterpillars.

6. If there is high infestation of army worm chemical spray is necessary. Spray cypermethrin@1 ml/1 L water. Since the armyworm usually feeds at night, the best time to spray is late in the day.

In case of emergency, please contact:

National Plant Protection Centre, Semtoka

Tel. No. 02-351016/351261



Leisure

Announcement

Madanjeet Singh Scholarships 2015 in Bhutan

The UNESCO Madanjeet Center for South Asia Forestry Studies (UMCSAFS) at Ugyen Wangchuck Institute for Conservation and Environment (UWICE), Bumthang is pleased to announce the Madanjeet Singh scholarship for **four years Bachelors degree** program in **Forestry** to be undertaken at **College of Natural Resources** in Lobeyssa from July 2015 to July 2019.

For details please visit Ministry's website

-UWICE

Vacancy within the Board of APAARI Trustees

Dear APAARI Members, Partners and Stakeholders,

The World Agroforestry Centre (ICRAF) currently has a vacancy within the Board of Trustees which intends to fill with an application from South Asian region. You are invited to nominate suitable candidates by sharing their names, affiliations and contact details.

Nomination should be sent to m.kroma@cgiar.org by 30 June 2015.

For more details regarding the vacancy, please visit:

<http://www.apaari.org/announcements/icraf-vacancy.html>.

Sudoku Puzzle

Fill in the grid with digits in such a manner that every row, every column and every 3x3 box accommodates the digits 1-9, without repeating any.

Answer in the next issue

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2 | 6 | | 7 | | 1 |
| 6 | 8 | | | 7 | | | 9 | |
| 1 | 9 | | | | 4 | 5 | | |
| 8 | 2 | | 1 | | | | 4 | |
| | | 4 | 6 | | 2 | 9 | | |
| | 5 | | | | 3 | | 2 | 8 |
| | | 9 | 3 | | | | 7 | 4 |
| | 4 | | | 5 | | | 3 | 6 |
| 7 | | 3 | | 1 | 8 | | | |

Last week's solution

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 4 | 9 | 2 | 7 | 5 | 3 | 8 |
| 2 | 8 | 3 | 6 | 4 | 5 | 7 | 9 | 1 |
| 5 | 7 | 9 | 8 | 1 | 3 | 2 | 4 | 6 |
| 8 | 4 | 5 | 2 | 9 | 6 | 3 | 1 | 7 |
| 1 | 6 | 2 | 3 | 7 | 8 | 4 | 5 | 9 |
| 9 | 3 | 7 | 4 | 5 | 1 | 6 | 8 | 2 |
| 3 | 5 | 1 | 7 | 6 | 9 | 8 | 2 | 4 |
| 4 | 9 | 6 | 5 | 8 | 2 | 1 | 7 | 3 |
| 7 | 2 | 8 | 1 | 3 | 4 | 9 | 6 | 5 |

Submit articles for
RNR-Newsletter, June 2015
to
tyangzom@moaf.gov.bt
OR
ics@moaf.gov.bt

Implementation Support Review Mission for MAGIP concludes

Sangay Wangdi, MAGIP



Dr. Deep Joshi checking the quality of HDPE pipe at Yangbari Irrigation Scheme

May 16-23: Based on the recommendations of the joint review mission (JRM) for MAGIP in Nov 2014, the Implementation support review mission by the International Fund for Agricultural Development (IFAD) was fielded to review the irrigation infrastructure within MAGIP to enhance the Commercial Agriculture and Resilient Livelihood Enhancement Programme (CARLEP) design, finalise the economic and financial analysis for new CARLEP Adaptation for Smallholder Agriculture Programme (ASAP) activities and to attend the annual donor coordination meeting for the RNR sector facilitated by the Ministry.

The IFAD mission members comprised of Ms. Lakshmi Moola, the Country Program Manager, Rome;

Mr. Vincent Darlong, the Country Program Officer, Delhi and Mr. Deep Joshi, IFAD Consultant.

Ms. Moola participated in the donor coordination meeting in Thimphu on May 21 and met with the IFAD development partners and held consultations with the Finance Ministry to finalise the costing for CARLEP.

The other two members visited the project sites in Samdrup Jongkhar and Mongar to take stock of the irrigation, infrastructure and capacity built supported by MAGIP to enhance the intended interventions of CARLEP.

With support from the Dzongkhag Agriculture Sector, Khamethang (upper and lower) irrigation

schemes in Phuntshothang geog were reviewed. The irrigation beneficiaries were interviewed on the benefits, issues and future plans. Both irrigation schemes had no water user association (WUA) instituted. However based on the feedback from the Tshogpa, there seemed to no major issues with regard to water sharing rights. The upper Khamethang has 24 beneficiaries while lower Kamethang has 39 beneficiaries.

The other site visited was the Mokhama irrigation scheme in Gomdar geog which has recently formed WUA with 22 members through MAGIP. The president of the WUA informed the mission that it was too early to share any issues and opportunities.

To date, the association has accumulated Nu. 5000 (Five thousand) only in the group saving account. Mr. Cheku, the WUA chairperson shared that the high-density polyethylene pipes (HDPE) used in the irrigation scheme gets blocked by silt and pebbles frequently and has to be cleaned time and again by the members.

Inspecting the pipes and irrigation source, the mission found out that the water was fed directly to the pipes which allowed all silt and pebbles to pass through resulting in frequent blockages. The mission recommended that a stilling pond be added to the source so that sand and pebbles settle down before flowing into the pipe. This inter-

Contd. at page 8



Lead Farmers completes farming training at RDC Wengkhar

Tashi Phuntsho and Lhap Dorji, RDC Wengkhar



With fund from MAGIP to RDC Wengkhar, 20 “lead farmers” selected by the centre and trained on fruits and vegetables in the previous years under the Horticulture Research and Development Project (HRDP JICA) completed a training on soil fertility management practices, integrated plant protection practices, maize and rice cultivation practices, organic farming practices and group management and communication skills.



With Resource persons from the National Soil Service Centre, National Plant Protection Centre, National Organic Program, RDC Wengkhar and the Rural Development Training Centre, the training was conducted at RDC Wengkhar from 4-9 May 2015.

The farmers from Lhuentse, Mongar, Trashiyangtse, Trashigang, Samdrupjongkhar and Pemagatshel representing outreach sites established in the previous years by the centre attended both theory and practical sessions. They visited a demo organic farm in Themnangbi where cattle urine is used as a bio pesticide and soil fertility enhancer and a demo integrated and commercial farm at Jangdung.

This group of “lead farmers” will now be called in for transfer of skills to other farmers as and when required by the Dzongkhags and centre. Agencies are expected to pay a nominal service fee for availing the services of these “lead farmers”.

Contd. from page 7...Implementation Support Review ...

vention is expected to minimise the pipe blockages. The last irrigation scheme visited was the Yangbari irrigation channel in Yangbari, Gongdue geog of Mongar has 65 beneficiary households that include 19 absentee households. Like the Mokhama irrigation WUA, this scheme has a newly formed WUA and also a Yangbari vegetable group.

The mission observed that the HDPE pipes used for irrigation were of low quality coupled with wrong installation of pipes in the ground which resulted in breaking of pipes. The mission has suggested the project to find out with the supplier of HDPE pipes on the quality. Instead of HDPE pipes, the mission recommended use of polyvinyl chloride pipes

which are stronger and allows easy maintenance for farmers in future irrigation schemes in such terrains.

MAGIP was represented by the Project Director, Dzongkhag Agriculture Officer, extension agents and beneficiaries during the field visits, meetings and debriefings.

If undelivered please return to:

Information and Communication Services (ICS)
Ministry of Agriculture and Forests
Post Box: 1095, Thimphu-Bhutan
Tel(PABX): 02-323765/321142/322855
Fax: 02-324520
Email: ics@moaf.gov.bt
Website: www.moaf.gov.bt